

Sandy Lake Dam,
Tender's Residence
Sandy Lake Dam Site
At Junction of Sandy River
and Mississippi River
Aitkin County
Minnesota

HABS No. MN-126

HABS
MINN,
1-SALA,
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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Buildings Survey
National Park Service
Rocky Mountain Regional Office
Department of the Interior
P.O. Box 25287
Denver, Colorado 80225

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HISTORIC AMERICAN BUILDINGS SURVEY
Sandy Lake Dam Tender's Residence

I. Introduction

Location: Sandy Lake Dam Site, Sandy Lake, Aitkin
County, Minnesota

Quad: MN Quad 7.5 Min., Libby, Section 25, T 50
N, R 24 W

UTM: Zone 15-475,530e - 5,181,400n

Date of
Construction: 1891-1894

Present Owner: St. Paul District, U.S. Army Corps of
Engineers

Present Use: Vacant

Significance: The Sandy Lake Dam Tender's Residence is
one of two original buildings remaining
at the Sandy Lake Dam Site. The dam site
is one of six built by the Corps of
Engineers in the Mississippi Headwaters
region during the late 19th and early 20th
centuries to enhance navigation on the
Upper Mississippi River.

Historian: Dr. Jane Lamm Carroll
St. Paul District
Corps of Engineers

II. History

A. General History of the Mississippi Headwaters Dam Sites

As part of the earliest effort to improve navigation on the Upper Mississippi River, the Mississippi Headwaters Dam Sites are significant for their role in the development of regional transportation. The Mississippi Headwaters Reservoirs project, which included six dams and six reservoirs, was constructed between 1881 and 1912 and comprised one of the earliest large-scale systems of reservoirs in the nation. The Corps of Engineers designed the system to enhance the flow of the Mississippi during low water periods of late summer and autumn, thus allowing uninterrupted steamboat navigation on the upper river. By enabling a more reliable and efficient waterway system, the reservoirs provided an alternative to the railroads and to a certain extent restored competition in the region's transportation industry.

At the time the reservoirs were proposed, many in the Upper Mississippi Valley had become alarmed by the decline of river traffic and the prospect of the railroads monopolizing transportation. Midwesterners predicted that the revival of the Mississippi as a commercial highway would force the railroads to lower freight and passenger rates. Concerned Mississippi Valley citizens held a number of river improvement

conventions during the 1870s to discuss ways to rejuvenate declining steamboat traffic. One convention specifically endorsed reservoirs as a means to reviving river transportation.¹ In addition, there was a great deal of interest expressed by Minnesota legislators and Congressmen about a reservoir system on the Upper Mississippi as a means of improving navigation.²

A civilian engineer, Charles Ellett, Jr., first proposed the reservoir concept in 1850. Congress had hired Ellet to study flood control on the Ohio and Lower Mississippi rivers. Ellet recommended a series of storage reservoirs to control the water levels of the tributaries of the Mississippi during wet and dry periods. At the time, however, the Corps of Engineers did not favor Ellet's proposal. In 1861, two Corps engineers developed a plan for controlling floods and improving navigation based on a system of levees rather than reservoirs. This proposal proved more influential in determining river planning during the next fifteen years.³ However, in 1866 the Corps began a fourteen-year series of surveys of the Mississippi Headwaters drainage area for the purpose of improving navigation. As the result of these surveys, the Corps advanced various plans for the improvement of navigation above Lake Pepin. All of the proposals involved a reservoir system in the Mississippi Headwaters. An 1875

plan, which was eventually adopted, featured a system of timber and masonry dams at the Headwaters lakes and rivers. The plan recommended construction of eight dams, including the six dam sites at Leech Lake, Lake Winnibigoshish, Pokegama Falls, Sandy Lake, Pine River and Gull Lake. The Corps decided that proposed dam sites at Mille Lacs and the Vermillion River were unnecessary.⁴

In 1878 Congress asked the Corps of Engineers to study the impact of a reservoir system on navigation on the Mississippi River. On the basis of this study, which predicted that water levels below St. Paul would be raised by such a system, Congress authorized the Corps to construct an experimental dam at the outlet of Lake Winnibigoshish.⁵ Construction at Winnibigoshish began in 1881. By 1884, dams had also been built at Leech Lake, Pokegama Falls, and Pine River. The dams at Sandy and Gull lakes were completed in 1895 and 1912, respectively.⁶

The engineers constructed the original dams out of timber, due to the difficulty of transporting materials and supplies to the wilderness sites. Later, in the late 1890s and early 1900s, the Corps reconstructed the dams with concrete. In building the Mississippi Headwaters dams, the Corps applied technology that was commonly in use in the late 19th and early 20th centuries. The dams, therefore, are not

unique either for their architectural or engineering design. Each of the dams had an earthen embankment and a timber outlet structure footed on timber piles. All of the dams incorporated log sluices, and the Corps added a navigation lock at Sandy Lake to serve the burgeoning steamboat traffic between Aitkin and Grand Rapids.⁷

A complex of buildings that included a dam tender's house and maintenance facilities was completed at each site prior to or during dam construction. After the dam was completed, the complex expanded to include structures necessary for dam personnel to live self-sufficiently. In 1905, the Corps completed a telephone system connecting the dam sites that enabled dam tenders to communicate with the district office in St. Paul. Prior to the installation of the telephone, dam personnel used telegrams and letters to report to the district office on water levels, rainfalls, and dam operations. Although the district office regulated the release of water from the dams, the civilian dam tender was responsible for daily operation of the dam. At times, the Corps employed additional personnel at the dam sites to assist the dam tenders.⁸

Early reaction to the operation of the Mississippi Headwaters dams was favorable. In 1901 Corps engineers reported that the dams had demonstrated the capability of raising the low water stage of the Mississippi River at St.

Paul by 12-18 inches over the course of ninety days. The effect of the dams on the flow farther downriver was a matter of controversy. Some claimed that the benefits to navigation extended as far down as Lake Pepin and even to Illinois. However, Corps records show that the benefits to navigation were the greatest above the Falls of St. Anthony (Minneapolis) and were minimal downstream.⁹

Although the Corps cited navigation improvements as its primary rationale for building the Headwaters reservoirs, commercial interests in the Twin Cities and the region benefitted the most from the project. The water power, flour milling, and lumber milling companies at the Falls of St. Anthony profited from the enhanced flow provided by the release of water from the reservoirs during the dry season. Not surprisingly, these commercial interests had been influential in promoting the reservoirs project. The most prominent advocate was Senator William D. Washburn, a Minneapolis businessman with interests in the flour milling, water power, and lumber industries.¹⁰ Washburn, with the support of civic leaders from Minneapolis and other Upper Mississippi River communities, fought for a federally funded reservoir system in Congress. Minneapolis leaders believed the reservoirs would revitalize river traffic above the Falls of St. Anthony and establish the city as the seat of navigation for the state's northern frontier. Communities

along the river hoped the reservoirs would control flooding and renew the waterway as a commercial highway.¹¹

Congress remained wary of funding the Mississippi Headwaters project during the 1870s because of its apparent benefits to private commercial interests. Thus, in 1878 Congress explicitly requested the Corps to study the impact of a reservoir system on navigation, as such a benefit would serve the public interest. Since there was little traffic above the Falls of St. Anthony, the Corps had to make the case that navigation between St. Paul and Lake Pepin would be augmented by the reservoir system.¹²

The Headwaters project had opponents in the region. The St. Paul Board of Trade and St. Paul's civic leaders feared that the reservoirs would give Minneapolis a commercial advantage. The railroads were also against the plan, as the rejuvenation of steamboating on the Mississippi would be detrimental to their economic interests. In addition, many of the lumbermen logging in northern Minnesota feared the dams and reservoirs would impede their activities.¹³

It is clear that Minneapolis and the commercial interests at St. Anthony Falls profited from the construction of the dams. The milling and water power companies worked closely with the Corps of Engineers in the ensuing years to regulate the flow of the river to their advantage. The release of water from the reservoirs provided expanded water power at St.

Anthony Falls at a time when usage was rapidly increasing.¹⁴ On the other hand, the effect of the reservoirs on the flow below St. Paul was insignificant. The real impetus to navigation on the Upper Mississippi occurred after the construction of a series of locks and dams between 1917 and 1940.

B. History of the Sandy Lake Dam Site

The Sandy Lake Dam is located in Aitkin County, Minnesota, on the Sandy River. It is one mile above the junction of the Sandy and Mississippi rivers and 270 miles above St. Paul. The total drainage area above the dam is 421 square miles. Sandy Lake is the most easterly of the six reservoirs and includes eight natural lakes. The Corps considered the Sandy Lake Reservoir especially desirable because it was eighty river miles closer to St. Paul than any of the other dam sites.¹⁵

The Corps built the original Sandy Lake Dam between 1892 and 1895. The navigation lock was completed the next year. The Corps reconstructed the dam and lock of concrete between 1908 and 1911. A lock house to shelter the lock machinery was completed in 1914. The dam also included a fishway and log sluiceway.

The Corps originally erected eight buildings at the Sandy Lake Dam Site when construction on the dam began in 1892. In addition to the dam tender's residence, there was a dining

room, kitchen, warehouse, carpenter shop, blacksmith shop, tool house, stable and laborer's quarters. In 1910, the Corps built a one-story stucco office. A map of the dam site in 1920 shows only the house, a woodshed, an ice house, a barn, a chicken coop, a warehouse, a carpenter shop and a blacksmith shop. Currently, the dam tender's residence and the lock house are the only buildings remaining at the dam site.¹⁶

C. Historical Significance of the Sandy Lake Dam Site

As the fifth in the system of Mississippi Headwaters dams and reservoirs, the Sandy Lake Dam Site is significant for its contribution to the enhancement of navigation on the Upper Mississippi River. In addition, like the other dam sites in the system, the Sandy Lake Dam included a log sluice, thus facilitating the development of the logging industry in the Headwaters region. Logging began at Sandy Lake in the early 1860s. In 1870, the town of Aitkin, approximately fifteen miles south of Sandy Lake on the Mississippi, became the depot of the Northern Pacific Railroad, which transported supplies for the region's lumber camps. By 1883, at least twelve logging operations were in business around Sandy Lake. In 1880, the Northern Pacific erected a terminal at the pioneer town of McGregor, five miles south of Sandy Lake, to serve the lumber industry.

During the 1870s, steamboat traffic on the Upper

Mississippi between Aitkin and Grand Rapids (located north on the river at Pokegama Falls) grew steadily. To serve this traffic, the Corps built a lock at the Sandy Lake Dam Site, which was located about midway between the two towns.

D. The Sandy Lake Dam Tender's Residence

The Sandy Lake Dam Tender's Residence is a one-story house resting on a concrete foundation. It is finished in stucco and has a gable roof covered with asbestos cement shingles. The exterior is simple, with a plain wooden cornice and window surrounds, and a small screened porch. Most of the windows have two-over-two double-hung sash. The Corps originally built the house as a watchman's quarters sometime between 1891 and 1894. The building was finished with rough boards and rested on oak blocks over a cellar lined with 6 x 12 inch timber. In 1910, the Corps remodeled the house and installed a heating plant and plumbing. There have been a number of subsequent changes to the structure, including the addition of a bay window to the dining room at the east elevation. While the Sandy Lake house has the least architectural significance of the four remaining damtender's dwellings, it is the oldest and most utilitarian in its design.¹⁷

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2. Carole Zellie, "Upper Mississippi River Headwaters Damsites Cultural Resources Investigation," Report Prepared for the St. Paul District Corps of Engineers (1988), pp.11-12.
3. Zellie, p.11.
4. Zellie, pp.11-12.
5. Zellie, p.13.
6. Zellie, p.14.
7. Zellie, p.19.
8. Winnibigoshish Correspondence Books, 1880s-1890s, St. Paul District, Corps of Engineers; Zellie, p.19.
9. Zellie, p.20.
10. Merritt, p.69.
11. Lucile M. Kane, The Falls of St. Anthony: The Waterfall That Built a City (St. Paul: Minnesota Historical Society Press, 1987), pp.128-133.
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14. Kane, pp.132-133.
15. Zellie, p.89.
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17. Zellie, p.92.